IN THE CLAIMS:

1. (Currently Amended)   A method for performing reference normalization for a measured projection created by an imaging system that includes a radiation detector array with a right and left edge, the method comprising:

receiving a projection dataset created by the imaging system in response to a varying x-ray tube current, the projection dataset including a view;

calculating predicted fluxes for right and left~~the~~ sets of reference channels within the view, wherein ~~the~~a right set of reference channels is located proximate at the right edge of the detector array and ~~the~~a left set of reference channels is located proximate to the left edge of the detector array;

calculating average actual fluxes for the right and left sets of reference channels;

determining a reference correction value for the view based on the predicted reference fluxes and the average actual fluxes;

substituting a previous reference correction value scaled by an x-ray tube current change for the reference correction value if the right and left sets of reference channels are blocked; and

applying the reference correction value to the view.

2. (Original) The method of claim 1 wherein the imaging system is a computed tomography imaging system.

3. (Original) The method of claim 1 wherein the imaging system is a wide-bore computed tomography imaging system.

4. (Currently Amended)   The method of claim 1 wherein the right set of reference channels ~~are~~is implemented by detector cells in the detector array.

5. (Currently Amended)   The method of claim 1 wherein the left set of reference channels ~~are~~is implemented by reference detector cells in the detector array.

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6. (Original)   The method of claim 1 wherein there are three reference channels in each set.

7. (Original)   The method of claim 1 wherein:

the projection dataset further includes a measured x-ray tube current and a conversion factor for each set of reference channels;

the predicted flux for the right set of reference channels is calculated by multiplying the measured x-ray tube current and the conversion factor for the right set of reference channels; and

the predicted flux for the left set of reference channels is calculated by multiplying the measured x-ray tube current and the conversion factor for the left set of reference channels.

8. (Original)   The method of claim 1 wherein:

the projection dataset further includes a reference channel reading for each reference channel;

the average actual flux for the right set of reference channels is calculated by taking an average of the reference channel readings for the reference channels in the right set; and

the average actual flux for the left set of reference channels is calculated by taking an average of the reference channel readings for the reference channels in the left set.

9. (Currently Amended)   The method of claim 1 wherein the determining a reference correction value includes:

correcting the predicted fluxes for errors in conversion factors; and

setting the reference correction value for the view to the average actual flux from the set of reference channels with the highest ratio of the average actual flux to the predicted flux.; and

~~substituting a previous reference correction value scaled by an x-ray tube current change for the reference correction value for the view if the reference correction value for the view is blocked.~~

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10. (Currently Amended)   The method of claim 19 wherein the the right and left sets of reference channels are~~reference correction value for the view is~~ blocked if the ratio of the average actual flux to the predicted flux is less than a selected parameter.

11. (Original) The method of claim 1 wherein applying the reference correction value to the view includes dividing the measured projection by the reference correction value.

12. (Currently Amended)   A method for performing reference normalization for a projection created by an imaging system that includes a radiation detector array with a right and left edge, the method comprising:

operating the imaging system so as to create a projection dataset responsive to an object, wherein the imaging system is operated at varying x-ray tube currents to create the projection dataset and the projection dataset includes a view;

calculating predicted fluxes for ~~the~~ right and left sets of reference channels within the view, wherein the~~a~~ right set of reference channels is located proximate at the right edge of the detector array and the~~a~~ left set of reference channels is located proximate to the left edge of the detector array;

calculating average actual fluxes for the right and left sets of reference channels;

determining a reference correction value for the view based on the predicted reference fluxes and the average actual fluxes;

substituting a previous reference correction value scaled by an x-ray tube current change for the reference correction value if the right and left sets of reference channels are blocked; and

applying the reference correction value to the view.

13. (Original) The method of claim 12 wherein the object is a patient.

14. (Original) The method of claim 12 wherein the imaging system is a computed tomography imaging system.

15. (Original) The method of claim 12 wherein the right set of reference channels contains detector cells in the detector array.

16. (Original) The method of claim 12 wherein:

the projection dataset further includes a measured x-ray tube current and a conversion factor for each set of reference channels;

the predicted flux for the right set of reference channels is calculated by multiplying the measured x-ray tube current and the conversion factor for the right set of reference channels; and

the predicted flux for the left set of reference channels is calculated by multiplying the measured x-ray tube current and the conversion factor for the left set of reference channels.

17. (Original) The method of claim 12 wherein:

the projection dataset further includes a reference channel reading for each reference channel;

the average actual flux for the right set of reference channels is calculated by taking an average of the reference channel readings for the reference channels in the right set; and

the average actual flux for the left set of reference channels is calculated by taking an average of the reference channel readings for the reference channels in the left set.

18. (Currently Amended) The method of claim 12 wherein the determining a reference correction value includes:

correcting the predicted fluxes for errors in conversion factors; and

setting the reference correction value for the view to the average actual flux from the set of reference channels with the highest ratio of the average actual flux to the predicted flux.; and

~~substituting a previous reference correction value scaled by an x-ray tube current change for the reference correction value for the view if the reference correction value for the view is blocked.~~

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19. (Currently Amended)   A medium encoded with a machine-readable computer program code for performing reference normalization for a projection created by an imaging system that includes a radiation detector array with a right and left edge, the medium including instructions to implement a method comprising:

receiving a projection dataset created by the imaging system in response to a varying x-ray tube current, the projection dataset including a view;

calculating predicted fluxes for ~~the~~ right and left sets of reference channels within the view, wherein ~~the~~a right set of reference channels is located proximate at the right edge of the detector array and ~~the~~a left set of reference channels is located proximate to the left edge of the detector array;

calculating average actual fluxes for the right and left sets of reference channels;

determining a reference correction value for the view based on the predicted reference fluxes and the average actual fluxes;

substituting a previous reference correction value scaled by an x-ray tube current change for the reference correction value if the right and left sets of reference channels are blocked; and

applying the reference correction value to the view.

20. (Currently Amended)   A system for performing reference normalization for a projection, the system comprising:

a gantry having an x-ray source and a radiation detector array, wherein said gantry defines an object cavity, said x-ray source and said radiation detector array are rotatingly associated with said gantry so as to be separated by said object cavity and said detector array includes a right and left edge;

an object support structure movingly associated with said gantry so as to allow communication with said object cavity; and

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a processing device including instructions to implement the method comprising:

receiving a projection dataset created by the imaging system in response to a varying x-ray tube current, the projection dataset including a view;

calculating predicted fluxes for ~~the~~ right and left sets of reference channels within the view, wherein ~~the~~a right set of reference channels is located proximate at the right edge of the detector array and ~~the~~a left set of reference channels is located proximate to the left edge of the detector array;

calculating average actual fluxes for the right and left sets of reference channels;

determining a reference correction value for the view based on the predicted reference fluxes and the average actual fluxes;

substituting a previous reference correction value scaled by an x-ray tube current change for the reference correction value if the right and left sets of reference channels are blocked; and

applying the reference correction value to the view.

21. (Currently Amended) A system for performing reference normalization for a projection, the system comprising:

an imaging system including a radiation detector array with a right and left edge;

an object disposed so as to be communicated with the imaging system, wherein the imaging system generates a projection dataset responsive to the object and to a varying x-ray tube current, the projection dataset including a view; and

a processing device, wherein the processing device:

receives the projection dataset created by the imaging system;

calculates predicted fluxes for ~~the~~ right and left sets of reference channels within the view, wherein ~~the~~a right set of reference channels is located proximate at the right edge of the

detector array and thea left set of reference channels is located proximate to the left edge of the detector array;

      calculates average actual fluxes for the right and left sets of reference channels;

      determines a reference correction value for the view based on the predicted reference fluxes and the average actual fluxes;

      substitutes a previous reference correction value scaled by an x-ray tube current change for the reference correction value if the right and left sets of reference channels are blocked; and

      applies the reference correction value to the view.

22. (Original) The system of claim 21, wherein the object is a patient.

23. (Original) The system of claim 21, wherein the imaging system is a computed tomography imaging system.

24. (Original) The system of claim 21 wherein the imaging system a wide-bore scanner.